Minority Statement Dissenting in Part
from Tick-Borne Disease Action Committee Report

Submitted October 2011 by:

Mark D. Alexander, Esq.
Mary Gaudet-Wilson
Michele L. McLeod, M.D.
Patrice Boily, Ph.D. (support staff)
Peter D. Licht, M.D.

Tick-borne disease is clearly a significant public health issue for Newtown. The undersigned are pleased that the Committee has issued a variety of recommendations to combat tick-borne disease that, if implemented effectively, should help mitigate this public health threat.

This separate statement explains our disagreement with the majority recommendation to adopt some form of organized deer cull as a tool for combating tick-borne disease. We dissent from this recommendation because the evidence suggests that a cull will be ineffective in combating tick-borne disease (or related problems) in a town with Newtown's characteristics. Moreover, a deer cull could actually detract from overall tick-borne disease reduction efforts if Newtown follows the pattern of other communities in which a deer cull dominates the public discussion and finite resources available for combating tick-borne disease.

We would recommend channeling resources toward the tools that we believe are best-suited for short-term amelioration, medium-term control and long-term effective elimination of tick-borne disease risk. These are discussed in the main report, but include: (1) expanded educational efforts to help empower residents to take personal steps toward reducing their tick-borne disease risk (see Committee Report, Chapter 7); (2) phased deployment of 4-Poster devices, which studies have shown can kill 90% or more of ticks where used (see Committee Report, Subchapter 5.G.4); (3) targeted use of anti-tick sprays in high-traffic, high-risk areas where 4-Posters cannot be used (see Committee Report, Subchapter 8.A); (4) greater use of single dose Doxycycline (200 mg) for Lyme prophylaxis if used within 72 hrs after removal of an engorged nymph or adult tick; and (5) Town (and, ideally, regional among states where Lyme disease is endemic) support for the development of a safe and effective Lyme disease vaccine, promising research on which is currently in progress (see Committee Report, Chapter 9).

The problems associated with using deer culls to address tick-borne disease are touched on in the body of the report, but can be summarized as follows: First, the evidence indicates that deer densities must be reduced to a very low level in order to make a significant impact on tick-borne disease. Second, the evidence indicates that there are no practicable culling methods available to attain such density levels.

Deer Density Must Be Reduced to Very Low Levels to Reduce Tick-Borne Disease Incidence

Studies and experts suggest that deer reductions are unlikely to make a measurable impact on tick-borne disease unless deer densities are reduced dramatically (to somewhere in the 10-20 deer/sq mi range). This is because the relationship between deer density and tick-borne disease

is not linear, but instead characterized by a threshold effect. While some tick reduction may occur following an incremental decrease in deer density[1], tick-borne disease incidence is unlikely to decrease unless deer density is reduced to very low levels.[2]

The Committee majority have argued that even a moderate reduction in deer population would represent a worthwhile effort toward reducing tick-borne disease. We respectfully disagree for two reasons.

First, the evidence is at best inconclusive that such moderate reductions will reduce tick-borne disease risk (as opposed to tick populations). There is no study demonstrating either: (a) the reduction of tick-borne disease as a result of deer reduction in a mainland community comparable to Newtown; or (b) the reduction in tick-borne disease as the result of a moderate reduction in deer density anywhere. Decreases in tick-borne disease incidence as a result of deer reduction have been reported only where deer were eliminated or reduced to very low densities (<10 deer/sq mi) in small and geographically isolated communities such as islands and peninsulas. Even there, a recent re-analysis at Mumford Cove, one of the DEP's most intensive and best-known deer reduction efforts, found that since the cull was implemented, Lyme disease incidence has not declined to a statistically significant extent and is indeed nominally higher than in the surrounding control area (Groton). Similarly, Lyme disease remains prevalent in areas in which the DEP has reported successful deer management efforts, including areas with reported densities as low as 12 deer/sq mi.[3]

Second, any benefits of a modest reduction in deer density must be balanced against the corresponding fiscal and opportunity costs. Even a massive deer culling effort using professional sharpshooters is likely to result in such small changes in tick-borne disease risk (if any) that it would do nothing to change Newtown's status as an endemic tick-borne disease zone. Whatever precautions Newtowners are currently advised to take will remain necessary: Newtowners will still have to apply repellent, do daily tick checks, and have their yard sprayed with acaricides to protect themselves. Newtown would get a much better return on its investment if the funds and manpower that would be required to run a deer reduction program were instead channeled toward methods that are proven as being effective to reduce tick-borne diseases, such as personal protection and 4-Posters.

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[1] While drastic reductions in deer density can decrease tick abundance, studies investigating the effects of incremental changes in deer density have yielded mixed results. Some found that tick and deer densities are linearly correlated; some found that tick and deer densities are related in a non-linear, threshold-type of relationship; others found no association between the two variables.

[2] One prominent scientist, Dr. Rick Ostfeld, has posited that ticks would turn to other hosts if deer densities were substantially reduced in a large mainland community rather than the more isolated areas where the primary deer reduction studies have been conducted. We view this hypothesis as of primarily academic interest, however, because, as is explained below, it is unlikely that communities like Newtown can reduce deer populations to a level where this theory could be tested.

[3] Several towns in DEP Deer Management Zone 2, where average deer density has reportedly been at around 15/sq mi for the past 15 years, have Lyme disease incidence rates well above state average, including Barkhamstead, Canton, Granby and New Hartford.

Any Plausible Form of Deer Cull Will Result in Only Marginal Deer Density Reductions

Because deer management has been advocated and adopted in many communities over the course of many years, the outcomes of a deer cull in Newtown are predictable. Controlled hunt programs like those adopted by other Fairfield County communities have to date resulted in only modest increase in the deer harvest levels associated with traditional recreational hunting, and have resulted in no demonstrable reduction in deer density or tick-borne disease risk.

At the other extreme, the most aggressive and costly deer reduction method, sharpshooting, typically will reduce deer in a targeted community to only a 25-30 deer/sq mi level, which remains well above the levels required to make a significant reduction in tick-borne disease. Dr. Anthony DeNicola, perhaps the world's leading expert on sharpshooting, has explained that he would not use tick-borne disease as a rationale for a sharpshooting program because of the practical difficulties of achieving densities of 20 deer/sq mi or lower (Dr. DeNicola said that his sharpshooting programs in New Jersey and elsewhere have tended to stabilize at around 25-30 deer/sq mi because the costs of deer reduction beyond that point increase substantially).

Some leaders of deer management efforts in other communities have acknowledged the limited success of such programs in reducing deer density to the levels associated with reduced tick-borne disease, and have focused efforts on seeking various changes in hunting regulations in order to facilitate better results in the future. However, the Committee has reviewed no evidence suggesting that any plausible changes in regulations or tactics would be likely to make a meaningful difference in deer management success. As discussed above, even sharpshooters, who have far more effective tools at their disposal (night hunting, scoped rifle hunting, etc.) than any volunteer hunting system would have, tend to plateau at a density level above that associated with significant tick-borne disease reductions. No approach will change the fundamental problem that Newtown is a deer-friendly habitat with many places for deer to hide and breed.

The examples most often held up as outliers to the uninspiring deer reduction results in other communities are Bernards Township, NJ and Mumford Cove, CT. The former community at one time reported achieving an estimated density level of 20-25 deer/sq mi through a controlled hunt program, while Mumford Cove has claimed a reduction of its deer population below 10 deer/sq mi. Properly understood, however, these examples serve to underscore the extreme difficulty of reducing tick-borne disease through deer reduction in a town like Newtown.

The most recent aerial survey of Bernards Township conducted earlier this year as part of a CDC study showed a density level of 46 deer/sq mi, nearly twice the level previously reported (but consistent with our analysis of Bernards Township's hunting and vehicle collision data) and more in line with other communities employing roughly similar controlled deer hunt tactics. Dr. Robert Jordan, a biologist who has conducted tick-borne disease research in Bernards Township, has stated that there is no evidence of a decline in tick density or tick-borne disease incidence in Bernards Township as a result of nearly 10 years of controlled hunting, despite a more than 60 percent reduction in deer density. These results are consistent with the view offered by Dr. DeNicola that volunteer controlled hunt programs tend to plateau around the 40-50 deer/sq mi level, well above the level needed to reduce tick-borne disease. Bernards Township is thus less a

success story regarding the use of deer management to combat tick-borne disease than a cautionary example of failure.

Mumford Cove, in turn, is a tiny (less than 1/3 sq mi) peninsular community in which the DEP organized a controlled hunt using overwhelming force designed to give deer "no place to hide." Employing the same methods used in the Mumford Cove cull in a town the size of Newtown would require at least *10,000* hunters simultaneously afield for six days each season. Perhaps more to the point, there will always be places for deer to hide in a town with thousands of properties offering attractive deer habitat.

Other Deer Issues

As a "Tick-Borne Disease Action Committee," we believe that the Committee's primary area of focus should be on tick-borne disease and interventions likely to reduce such disease. That said, the Committee has also considered other deer-related issues, as mandated by its charge. Regarding Newtown's forests, deer reductions are unlikely to improve forest health for the same reasons they are unlikely to reduce tick-borne disease. Scientific peer-reviewed articles indicate that forests with deer densities exceeding 20 deer/square mile will have inhibited natural regeneration. It is unlikely that deer reduction efforts could bring the deer population down to such levels; as discussed above, controlled hunt programs like that in Bernards Township have stabilized well above that level.

Reduction in deer vehicle collisions through deer management efforts, by contrast, has been demonstrated in many communities, though typically in communities with significantly higher deer/vehicle collision rates than in Newtown. To the extent that Newtown's deer/vehicle collision rates are deemed to be unacceptably high, the Committee has recommended various steps apart from deer management that may tend to reduce such collisions. It is true that an *effective* deer reduction program would also tend to reduce such collisions, though the track record in making meaningful reductions is mixed for deer management efforts other than sharpshooting.

Closing Thoughts

It is worth clarifying the issues that are *not* a basis for our dissent. Our position is not based on moral or ethical concern with deer culls. Such value-based considerations are outside the scope of our Committee's charge and better left to Newtown's elected political leaders to evaluate. Nor is this a case of "the perfect is the enemy of the good" because the most likely result of a deer management program – little or no reduction in risk – is not, in our view, "good."

We believe that a focus on deer reduction would take Newtown down the same unpromising track that has failed to show results in neighboring communities. The area's deer management efforts have come to resemble a legion of Ahabs grimly fixated on taking down their white (tailed) whale. But if Newtown can instead step back and make a dispassionate attempt to learn from these examples and the latest available data, it can make a real impact on tick-borne disease by adopting methods offering a better prospect of success.

Selected References

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GLOSSARY

CAES -- Connecticut Agricultural Experiment Station

CDC – Centers for Disease Control

CONNDOT – Connecticut Department of Transportation

CWD – Chronic Wasting Disease

d/mi^2 -- deer per square mile

DEP – Connecticut Department of Environmental Protection (as of 2011, Connecticut Department of Energy and Environmental Protection)

CONNDOT – Connecticut Department of Transportation

DPH – Connecticut Department of Public Health

DVC – deer-vehicle crash

EM – erythema migrans

FCMDMA -- Fairfield County Municipal Deer Management Alliance

HVCEO -- Housatonic Valley Council of Elected Officials

HSUS -- Humane Society of the United States

MAIS – maximum abbreviated injury scale

MVC – motor vehicle crash (non-deer related)

MVS – NHTSA's motor vehicle software that estimates vehicle crash costs

NHTSA – National Highway Traffic Safety Administration

NPD – Newtown Police Department

PI&E -- Public Information and Education Campaign

PSA -- Public Service Announcement

TBD – tick-borne disease

TBDAC -- Newtown Ad Hoc Tick-Borne Disease Action Committee

WCSU -- Western Connecticut State University

LIST OF ATTACHMENTS

Attachment 1. *Tick Management Handbook. An Integrated Guide for Homeowners, Pest Control Operators, and Public Health Officials for the Prevention of Tick-Associated Disease, Revised Edition*

Attachment 2. *Managing Urban Deer in Connecticut*

Attachment 3. DEP aerial surveys, Dr. Kilpatrick interpretation

Attachment 4. FCMDMA Economic Report

Attachment 5. DeNicola presentation handout

Attachment 6a. Rutberg presentation handout 1

Attachment 6b. Rutberg presentation handout 2

Attachment 7. Pound presentation

Attachment 8. BLAST presentation

Attachment 9. Tick Safe Zone Brochure

Attachment 10. Par-tick-ular Park Brochure

Attachment 11. Dr. Nelson slide presentation

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Appendix A: Speaker Summaries

Appendix B: Summary of Municipal Reports